

# Comparisons of Job Characteristics

**Focus Occupation:** [Civil Engineering Technicians \(17-3022\)](#)

**Associated Occupation:** [Environmental Engineers \(17-2081\)](#)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

## Knowledge

Similarity of Focus Occupation to Associated Occupation: 79

**Focus Occupation:** Civil Engineering Technicians (17-3022)

**Associated Occupation:** Environmental Engineers (17-2081)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
Engineering and Technology	5.7	21.7	15.6	<< Extensive education and/or training may be required
Design	5.2	17.2	14.1	< Expanded education and/or training may be required
Mathematics	9.2	16.3	15.0	0 Current knowledge level may be sufficient
Chemistry	4.8	15.8	3.6	<< Extensive education and/or training may be required
Physics	4.3	15.7	7.0	<< Extensive education and/or training may be required
Law and Government	5.9	13.6	6.7	<< Extensive education and/or training may be required
Building and Construction	4.0	13.0	15.1	> Current knowledge level is likely sufficient
Public Safety and Security	6.9	12.0	10.6	< Expanded education and/or training may be required
Biology	3.7	10.0	2.8	<< Extensive education and/or training may be required
Transportation	4.6	9.0	8.6	0 Current knowledge level may be sufficient
Geography	3.9	8.3	9.0	0 Current knowledge level may be sufficient

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Skills

Similarity of Focus Occupation to Associated Occupation: 88

**Focus Occupation:** Civil Engineering Technicians (17-3022)

**Associated Occupation:** Environmental Engineers (17-2081)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation
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Reading Comprehension	10.7	16.4	12.9	<<	Extensive development of skills in this area may be required
Critical Thinking	10.8	14.5	10.7	<<	Extensive development of skills in this area may be required
Complex Problem Solving	9.1	13.9	9.4	<<	Extensive development of skills in this area may be required
Judgment and Decision Making	9.4	13.9	7.5	<<	Extensive development of skills in this area may be required
Systems Analysis	6.5	13.1	6.9	<<	Extensive development of skills in this area may be required
Mathematics	6.2	12.3	8.7	<<	Extensive development of skills in this area may be required
Systems Evaluation	6.4	11.7	6.6	<<	Extensive development of skills in this area may be required
Science	4.5	11.4	5.4	<<	Extensive development of skills in this area may be required
Operations Analysis	5.0	11.0	7.9	<<	Extensive development of skills in this area may be required
Quality Control Analysis	5.9	10.4	4.8	<<	Extensive development of skills in this area may be required
Management of Financial Resources	3.3	7.2	4.4	<<	Extensive development of skills in this area may be required
Programming	2.2	5.6	1.8	<<	Extensive development of skills in this area may be required
Technology Design	2.6	5.5	2.8	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 94			
Focus Occupation: Civil Engineering Technicians (17-3022) Associated Occupation: Environmental Engineers (17-2081)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Problem Sensitivity	11.1	17.0	10.8	<<	Extensive improvement in abilities may be required
Deductive Reasoning	10.6	16.2	11.4	<<	Extensive improvement in abilities may be required
Oral Comprehension	12.5	16.1	12.8	<<	Extensive improvement in abilities may be required
Written Comprehension	11.0	16.0	11.4	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	15.4	9.9	<<	Extensive improvement in abilities may be required
Information Ordering	9.9	14.2	10.3	<<	Extensive improvement in abilities may be required
Category Flexibility	9.0	13.6	9.4	<<	Extensive improvement in abilities may be required
Flexibility of Closure	7.8	13.5	7.4	<<	Extensive improvement in abilities may be required
Mathematical Reasoning	6.3	13.4	10.3	<<	Extensive improvement in abilities may be required

Perceptual Speed	7.4	11.9	6.7	<<	Extensive improvement in abilities may be required
Speed of Closure	5.9	11.2	6.2	<<	Extensive improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Activities that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 92

**Focus Occupation: Civil Engineering Technicians (17-3022)**

**Associated Occupation: Environmental Engineers (17-2081)**

Work Activities	Exclusivity of Activity
Analyze engineering design problems	69
Analyze scientific research data or investigative findings	27
Analyze technical data, designs, or preliminary specifications	47
Calculate engineering specifications	64
Communicate technical information	4
Confer with engineering, technical or manufacturing personnel	25
Develop plans for programs or projects	31
Draw prototypes, plans, or maps to scale	57
Estimate cost for engineering projects	69
Estimate time needed for project	64
Evaluate costs of engineering projects	70
Evaluate engineering data	60
Examine engineering documents for completeness or accuracy	62
Explain complex mathematical information	30
Interpret aerial photographs	69
Judge soil conditions	77
Operate land or site surveying instruments	80
Prepare safety reports	60
Prepare technical reports or related documentation	22
Read maps	42
Read technical drawings	7
Resolve engineering or science problems	46
Understand construction specifications	53
Understand engineering data or reports	48
Use building or land use regulations	65
Use computer aided drafting or design software for design, drafting, modeling, or other engineering tasks	58
Use drafting or mechanical drawing techniques	50
Use knowledge of regulations in surveying or construction activities	78
Use land surveying techniques	80
Use scientific research methodology	21
Use technical regulations for engineering problems	61

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.

## Tools and Technologies that Both Occupations Have in Common

Similarity of Focus  
Occupation to Associated  
Occupation: 80

**Focus Occupation: Civil Engineering Technicians (17-3022)**

**Associated Occupation: Environmental Engineers (17-2081)**

Tools and Technologies	Exclusivity
Audio and visual equipment	4
Chemical evaluation instruments and supplies	10
Computer data input devices	2
Computer printers	2
Computers	1
Content authoring and editing software	1
Cutting and crimping and punching tools	3
Drilling and operation machinery	29
Electrochemical measuring instruments and accessories	9
Fluid mechanics equipment	11
Hydrological instruments	31
Indicating and recording instruments	2
Industry specific software	1
Information exchange software	1
Laboratory mixing and stirring and shaking equipment and supplies	19
Laboratory ovens and accessories	15
Metals and metallurgy and structural materials testing instruments	15
Network applications software	1
Sampling equipment	12
Seismological instruments	56
Soil measuring equipment	20
Temperature and heat measuring instruments	6
Weight measuring instruments	7

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O\*NET (Occupation Information Network) data.